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ABSTRACT

A study of 28 mother/child dyads (children aged 3 to 6) in which half the children were deaf was undertaken to compare communication skills between hearing and deaf children and the characteristics of functional communication between mothers and their children. Tapes of a half hour free play situation between mother and child were studied for each of the S dyads. Among findings were that hearing Ss had a higher percentage of spontaneous communications, asked more questions, and used more behavior requests than their deaf counterparts. Mothers of deaf children were found to be more controlling, had more disapproving communication, and asked about the same number of questions as mothers of hearing children. Tables provide a breakdown of data. (PHR)

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A Comparison Study of Functional Communication in Deaf vs. Hearing Mother-Child Dyads: Descriptive Analysis and Intervention Implications

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Running Head: Functional Communication in Deaf Children

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INTRODUCTION

Deaf children and adults have repeatedly been characterized as impulsive, immature and egocentric (Office of Demographic Studies, 1971; Meadow, 1975; Harris, 1978). The liiterature indicates that deaf children show an incomplete understanding of the rules and norms of socially-appropriate behavior, as well as a reduced ability to decenter from their own perspective. Using a Piagetian model, Liben (1978) suggests that deaf children's difficulties in these areas result from experiential deficiencies encountered during development. Paramount among these deficiencies may be the lack of rich, satisfying communication during the deaf child's attempts at social interaction. Communication is crucial to the child engaged in active interpretation of his/her social environment. Thus, the communication problems of the developing deaf child may lead to inadequate knowledge of cultural rules, norms and expectations. Examination of early parent-deaf child communication deficiencies may both explain the origins of certain social interaction problems and lead to intervention strategies.

To date, there has been little comparative observational research of deaf child-caregiver interaction and the characteristics of their communication. Schlesinger and Meadow (1972) have found that hearing mothers of deaf preschoolers are more intrusive a[illegible]actic than mothers of hearing children. These findings have been repeatedly v[illegible]d (Collins, 1969; Goss, 1970; Brinich, 1974). Schlesinger and Meadow have al[illegible] found that deaf preschool children receive lower ratings for compliance and skill mastery than do hearing controls. Researchers have reported that hearing parents of deaf children find communication very frustrating, partially due to the preschool deaf child's reported inability to discuss absent objects and events (Heider and Heider, 1941; Schlesinger and Meadow, 1972). These studies, which focus on the mother, show communication differences between hearing mother-deaf child dyads and control hearing dyads. However, there has been little

consensus among researchers on methods of communication analysis and no comparative studies focusing on deaf and hearing children.

The present investigation has compared the communicative abilities of preschool deaf child-hearing mother dyads with those of control dyads during play interaction. Rather than taking a structural or grammatical perspective, communication skills have been examined from a functional or interactive standpoint. Each communication, therefore, has been analyzed according to the "function" it performs within the context of social interaction. The functional communication coding system will be discussed later.

Prior studies in this area have usually grouped all deaf children together, regardless of the severity of hearing loss, the age of onset of the loss of the presence of early communication training (Meadow, 1978). These serious methodological problems have made it difficult to interpret the findings of these studies. The present investigation has attempted to overcome these problems by utilizing a relatively homogeneous group of prelingually, profoundly deaf preschoolers. To make the findings of this study most meaningful, the subgroup of deaf children showing the most advanced communication abilities have been compared to hearing controls.

The present study hypothesizes that deficiencies in social experience may result, for the deaf child, largely from problems in functional communication. The following questions have been asked:

1. What are the characteristics of the deaf child's communication skills in social interaction?
2. Do these differ from those of a normally-developing hearing child in a way that might lead to an experiential deficit?
3. What characterizes the functional communication of the hearing mother attempting to interact with her deaf child?
4. Might these maternal characteristics contribute to the development of an experiential deficit in the deaf child?

Answers to these questions may lead to suggestions for communication intervention goals.

METHOD

Sample

The sample of the present study consisted of 28 mother-child dyads with children between three and six years of age. The sample was equally divided between hearing mother-deaf child and hearing mother-hearing child dyads. The groups were matched on age and sex of child. A subsample of deaf dyads was selected from the data of Greenberg (1978, in press). As judged by ratings of communicative competence, the 14 deaf children used in this study represented the better deaf communicators among the 28 originally collected. These 14 deaf preschoolers had reached a mean age of 13 months before being diagnosed. Most had been involved in communication training programs since 19 months (about one year earlier than most deaf children). They all had hearing parents, estimated normal intelligence and exhibited no handicaps other than their hearing problem. Previous analysis of these deaf children showed no differences in communicative ability based on the type of training program ("total" vs. "oral") in which they had been enrolled.

Procedure

Both experimental and control mother-child dyads were placed in a half-hour, free-play communication situation. A variety of toys and a snack were available to the dyads. The mothers were instructed to do as they wished in the situation, although both groups were explicitly asked not to "teach" the child. The dyads were videotaped through a one-way mirror and 8½ minutes of these tapes were coded for this report.

The tapes were analyzed using a functional communication coding system derived from a review of the language and deafness literature, as well as from clinical observation. The 17-category coding scheme characterized all gestural, signed and spoken communications by their communicative function or intent (see Table 1). Thus, communications were classified according to what the speaker intended to

convey to the listener, as interpreted by the coders (see Dore, 1974; Greenberg and Carmichael, 1980). For example, if the speaker intended for the listener to act, he/she could use a command, suggestion, declaration or question linguistic form. Any of these would fall into the one functional category of "behavior request" (BRP). The first 13 categories of the scheme were mutually exclusive and exhaustive. The final four were superordinate categories which could be applied to a communication already classified as one of the first 13 types. Additional classification was based on whether the message was spontaneous or elicited by another's communication. To investigate differential responsiveness of deaf and hearing children, communications functioning as responses to another's request were also marked.

Two teams of coders independently coded 25% of the videotapes. Agreement on the spontaneous vs. elicited judgment was .90. On the communication categories, combined reliability was .92, deducting both errors of commission and omission.

RESULTS

Children

A t-test of the total number of child messages revealed significantly more communications overall by the hearing children ($t=-2.43$, $df=26$, p .023). Hearing children also showed significantly more understandable, classifiable communications ($t=-4.83$, $df=26$, p .001) (see Table 2). Percentages of the functional communicative behaviors were calculated using the classifiable score, since these were the messages a listener could understand. However, this might have biased our findings against the deaf sample since their unclassifiable messages might have been sophisticated functional communications.

Using a Mann-Whitney U analysis, a number of significant differences in functional communication were found between groups (see Table 3). An important first finding was that hearing children showed a higher percentage of spontaneous

communications (U=13.0, p .001). Second, hearing preschoolers exhibited significantly more instrumental communications e.g., they asked more questions (U=31.0, p .002) and tended to use more behavior requests (U=60.0, p .081). These findings suggest that deaf children do not seek environmental information through communication as often as their hearing peers.

As expected, deaf children significantly more often discussed objects (U=169.0, p .001). Hearing children, on the other hand, more often communicated about their thoughts and actions on objects (U=26.0, p .001). Hearing children significantly more often answered yes/no and multiple choice questions (U=106.0, p .001), but no differences were seen in acknowledgement of another's actions or messages. This was interesting, considering that many of the same linguistic forms such as "OK," make up these two functional categories. Only the hearing children referred to a generalized other, suggesting that this group has a more advanced ability to decenter. The deaf group showed a significantly greater number of imitations of the mother (U=160.0, p .002).

There were no significant differences in the quantity of references to absent objects, events or persons between the deaf and hearing groups of children. This was surprising, both from the standpoint of an experiential deficiency hypothesis and from previous research findings. However, this was a select group of communicatively competent deaf children. Further, it was speculated that there might be a difference in the quality of these references (e.g. abstractness, degree of elaboration) between the two groups. Deaf children were significantly less compliant to their mothers' behavior requests (U=42.5, p .009). This agreed with previous results and with the findings on mothers' functional communication outlined in this report. It was speculated that lower compliance would make interaction difficult and might contribute to an experiential deficiency. In general, then, differences did exist between the two groups of children.

Mothers

Differences in functional communication behavior were also found between the groups of mothers, although a t-test revealed that their total mean number of communications was not different (see Table 4). First, previous findings characterizing the mother of a deaf child as more controlling were upheld by a trend towards more behavior requests (U=131.0, p .130) and a significantly greater number of calls for attention (U=178.0, p .001) by the mothers in the deaf group. This finding might indicate that mothers of deaf children exhibit a necessary communication adaptation which functions to bring their children into interaction. Second, these mothers showed a low percentage, but significantly more disapproving communication (U=150.5, p .009), although they did not differ from the hearing group on the frequency of approving comments. There were many similarities between the groups of mothers. It was surprising to note that mothers in the deaf group asked about the same number of questions as the other mothers. Also surprising was the finding that mothers of deaf children were no more didactic than were the controls. This contradicted reports of previous investigators.

DISCUSSION

The above findings indicate both similarities and differences between the deaf and hearing groups. Deaf children showed less spontaneous and instrumental communication, as well as lower compliance. Unexpectedly, they communicated about nonpresent events as often as their hearing peers. As predicted, mothers of deaf children were significantly more controlling and disapproving. In comparison to controls, however, they produced similar proportions of most functional communication types. Had we looked at the entire sample of 28 deaf children, including the less successful communicators, observed differences would have been even greater (Greenberg, in press).

With this coding system, meaningful differences in functional communication were found between deaf and hearing mother-child dyads. Such differences could plausibly lead to an experiential deficit in the developing deaf child. Knowledge of these differences, interpreted according to an experiential deficiency hypothesis, could lead to useful intervention goals.

Intervention Implications

Clinicians and teachers may find it valuable to assess communication, including spoken language, signs and gesture, from a functional standpoint. Through this type of assessment, information can be gleaned about the social communication skills of both the child and the dyad (e.g. mother-child, teacher-child). The present system can be used for preschoolers, while Skarakis and Prutting (1977) have outlined a simpler system useful for children at the one-word level.

The findings of this study point to a clinical focus on increasing spontaneity in communication, possibly by providing situations in which the deaf child will spontaneously communicate. Techniques such as the encouragement of instrumental messages (questions and behavior requests) are suggested by these findings. Also indicated is a possible deemphasis of object-oriented discussion, replaced by a focus on discussion of the child's thoughts and actions.

Demonstration of differences between mothers validates the notion that intervention should extend to the level of the dyad and family. The findings suggest that mothers of odeaf children are adapting to their children's handicaps. While some of these adaptations may be necessary (e.g. more requests for the child's attention), they may also contribute to functional communication problems and thus to creation of an experiential deficiency. Therefore, it may be important to alter the dyad's communication patterns, perhaps by working with the mother. For example, controlling communications and disapproving messages might possibly be pointed out and reduced.

Further data on this sample indicates that deaf dyads: don't stay on topics as long as hearing controls; engage in less turn-taking; have less complex conversations; and spend less total time interacting with each other (Greenberg and Carmichael, 1980). This suggests that these dyads show conversational or interactive difficulties in addition to the functional communication problems discussed here. Thus, these dyads demonstrate communication problems on several different levels. Intervention should therefore occur at both the general conversational and more specific functional communication levels.

In general, this analysis indicates that intervention directed toward reducing functional communication difficulties is possible. Such intervention may ameliorate part of an important experiential deficiency and thus play a crucial role in the social development of a deaf child. Hopefully, this information will be of value to those actually involved in intervention with deaf children.

Table 1
COMMUNICATION CATEGORIES

1. BRP - Behavior Requests
2. ATN - Get Other's Attention
3. RIN - Request Information (questions)
4. REF - Reference Present Objects
5. DIS - Discuss Self-Action or Thought
6. DIO - Discuss Other's Action or Thought
7. ADV - Approve Other's Actions/Messages (affective)
8. DAP - Disapprove Other's Actions/Messages (affective)
9. ACK - Acknowledge Other's Actions/Messages
10. SCA - Solicited Choice Answer
    (answers to yes-no or multiple-choice questions)
11. CND - Conversational Device
    (messages which indicate shifts in conversation)
12. INS - Teach (mother only)
13. VOC - Unclassifiable Communications

Superordinate Categories

14. INF - Reference Absent Objects, Events or Persons
15. RGO - Reference Generalized Other
16. IMT - Imitate Other's Prior Communication
17. COR - Conversational Continuer
    (messages which indicate listener understanding
    & signal speaker to continue)

Additional Classifications

SPCM - Spontaneous Communication
EPCM - Communication Elicited by Other's Message
ACMP/AKMP - Compliance to Other's Behavior Request
by Action/Acknowledgement
R - Response to Prior Request

Table 2

CHILD'S COMMUNICATIONS

Measure	Deaf	Hearing	Significance Level
Total Mean Number of Child Communications	71.57	91.36	.023* hearing more
Total Mean Number of Classifiable Communications	54.29	89.00	.001** hearing more (Analysis of variance)
Spontaneous Communications (%)	27.00	55.40	.001** hearing more (Mann-Whitney U analysis)
Action/Acknowledgement Compliance (%)	75.86	91.14	.009** hearing more (Mann-Whitney U analysis)

p .05 = *

p .01 = **

Table 3

PERCENTAGE OF CHILD'S COMMUNICATIONS

Measure	Percentage		Significance Level	
	Deaf Children	Hearing Children		
Behavior Requests	6.2	9.5	.081	trend- hearing more
Get Other's Attention	3.8	2.4	.471	NS
Request Information	6.1	10.9	.002**	hearing more
Reference Present Objects	59.2	34.1	.001**	deaf more
Discuss Self-Actions	9.9	22.7	.001**	hearing more
Discuss Other's Actions	2.1	2.9	1.000	NS
Approve Other's Actions	4.3	1.2	.109	trend -deaf more
Disapprove Other's Actions	1.4	1.8	.503	NS
Acknowledge Other's Actions	3.9	3.1	.713	NS
Answer Yes/No To Other's Questions	3.0	10.6	.001**	hearing more
Discuss General Other	0.0	0.4	.035*	hearing more
Imitate Other	7.3	0.5	.002**	deaf more
Reference Absent Ojbects, Events, Persons	4.6	3.6	.850	NS

(Mann-Whitney U analysis)

p .05 = *

p .01 = **

Table 4

PERCENTAGE OF MOTHER'S COMMUNICATIONS

Measure	Percentage		Significance Level	
	With Deaf Children	With Hearing Children		
Behavior Requests	11.1	7.4	.130	slight trend-deaf more
Get Other's Attention	6.6	0.4	.001**	deaf more
Request Information	29.6	30.7	.816	NS
Reference Present Objects	26.4	23.1	.199	NS
Discuss Self-Actions	4.5	11.7	.001**	hearing more
Discuss Other's Actions	4.7	6.0	.421	NS
Approve Other's Actions	11.7	8.6	.477	NS
Disapprove Other's Actions	1.4	0.4	.009**	deaf more
Acknowledge Other's Actions	1.4	5.7	.001**	hearing more
Answer Yes/No To Other's Questions	0.0	1.3	small N	
Discuss General Other	0.2	0.5	.103	slight trend-hearing more
Teach	2.5	2.4	.446	NS
Imitate Other	4.2	4.6	.679	NS
Reference Absent Objects, Events, Persons	4.3	4.1	.400	NS
			(Mann-Whitney U analysis)	
Total Mean Number of Mother Communications	127.00	113.86	.309	NS
			(Analysis of variance)	

p .05 = *

p .01 = **

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